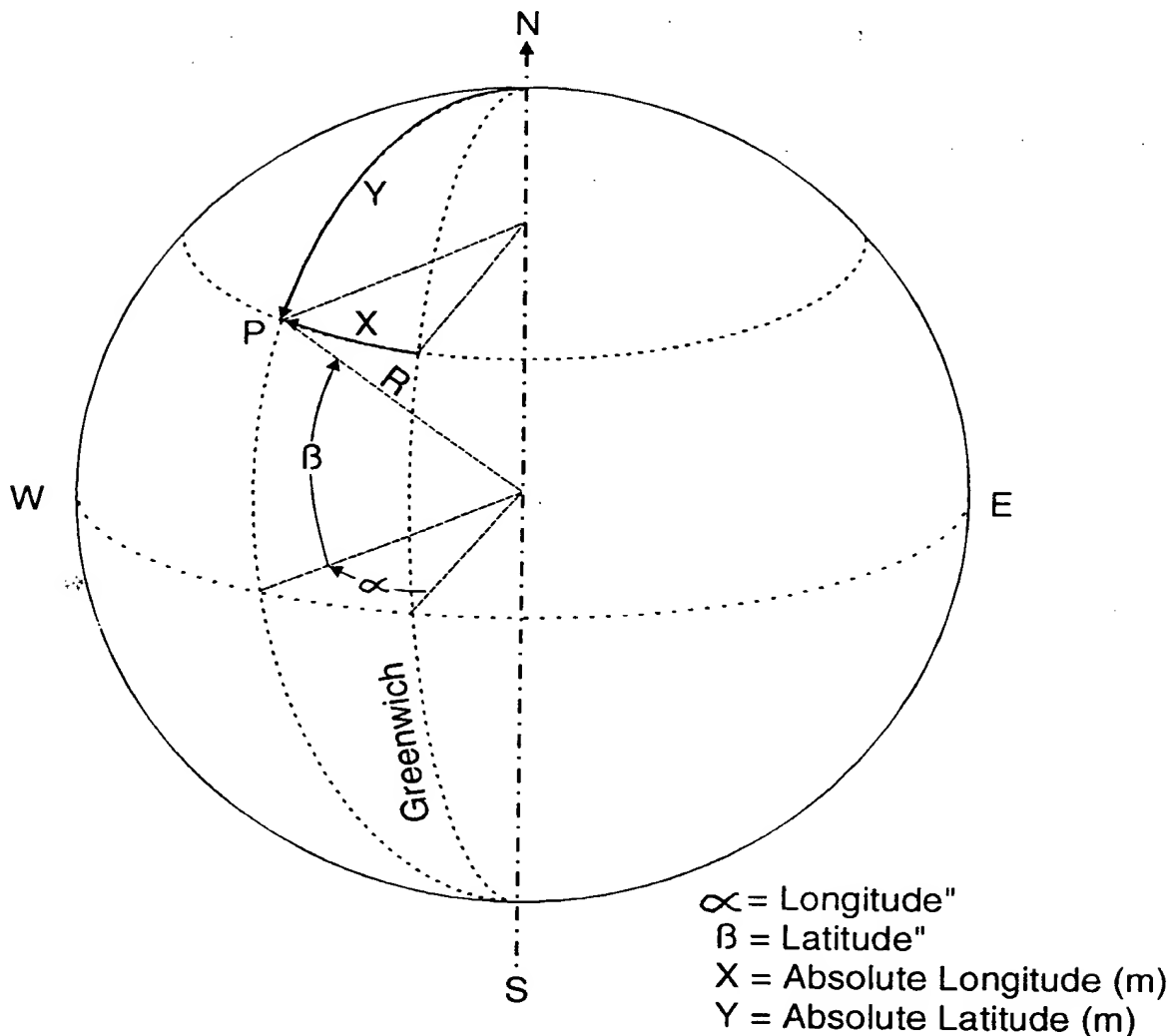


# Absolute Geographic Coordinates (AGCs)



Absolute Geographic Coordinates (AGCs):

A) For a Point Situated at ( $\alpha$  "W,  $\beta$ "N):

$$X = \alpha \times (2.500/81) \times \cos(\beta \times 90/324.000) \text{ m}$$

$$Y = 10.000.000 - \beta \times (2.500/81) \text{ m}$$

B) For a Point Situated at ( $\alpha$  "E,  $\beta$ "N):

$$X = 1.296.000 - \alpha \times (2.500/81) \times \cos(\beta \times 90/324.000) \text{ m}$$

$$Y = 10.000.000 - \beta \times (2.500/81) \text{ m}$$

C) For a Point Situated at ( $\alpha$  "W,  $\beta$ "S):

$$X = \alpha \times (2.500/81) \times \cos(\beta \times 90/324.000) \text{ m}$$

$$Y = 10.000.000 - \beta \times (2.500/81) \text{ m}$$

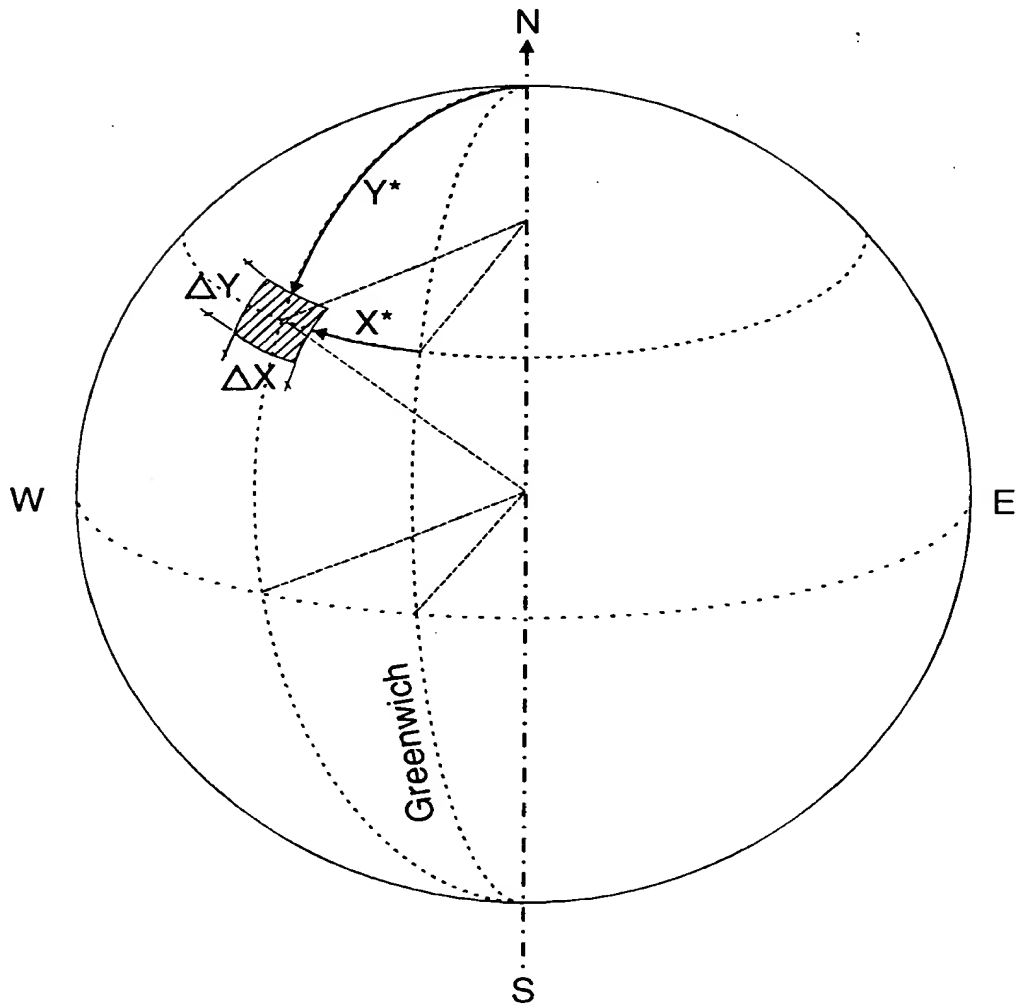
D) For a Point Situated at ( $\alpha$  "E,  $\beta$ "S):

$$X = 1.296.000 - \alpha \times (2.500/81) \times \cos(\beta \times 90/324.000) \text{ m}$$

$$Y = 10.000.000 - \beta \times (2.500/81) \text{ m}$$

FIG.1

# Fuzzy AGCs Determine Geodesic Squares



Given a Point of the Earth with AGCs:

$$X = x_7x_6x_5x_4x_3x_2x_1x_0$$

$$Y = y_7y_6y_5y_4y_3y_2y_1y_0$$

Then, the "FUZZY" AGCs:

$$X^* = x_7x_6x_5x_4x_3^*$$

$$Y^* = y_7y_6y_5y_4y_3^*$$

Specify the Geodesic Square that contains all AGC1 (X,Y), such that:

$$x_7x_6x_5x_4x_3000 \leq X \leq x_7x_6x_5x_4x_3999; \Delta X = 1000m$$

$$y_7y_6y_5y_4y_3000 \leq Y \leq y_7y_6y_5y_4y_3999; \Delta Y = 1000m$$

FIG.1

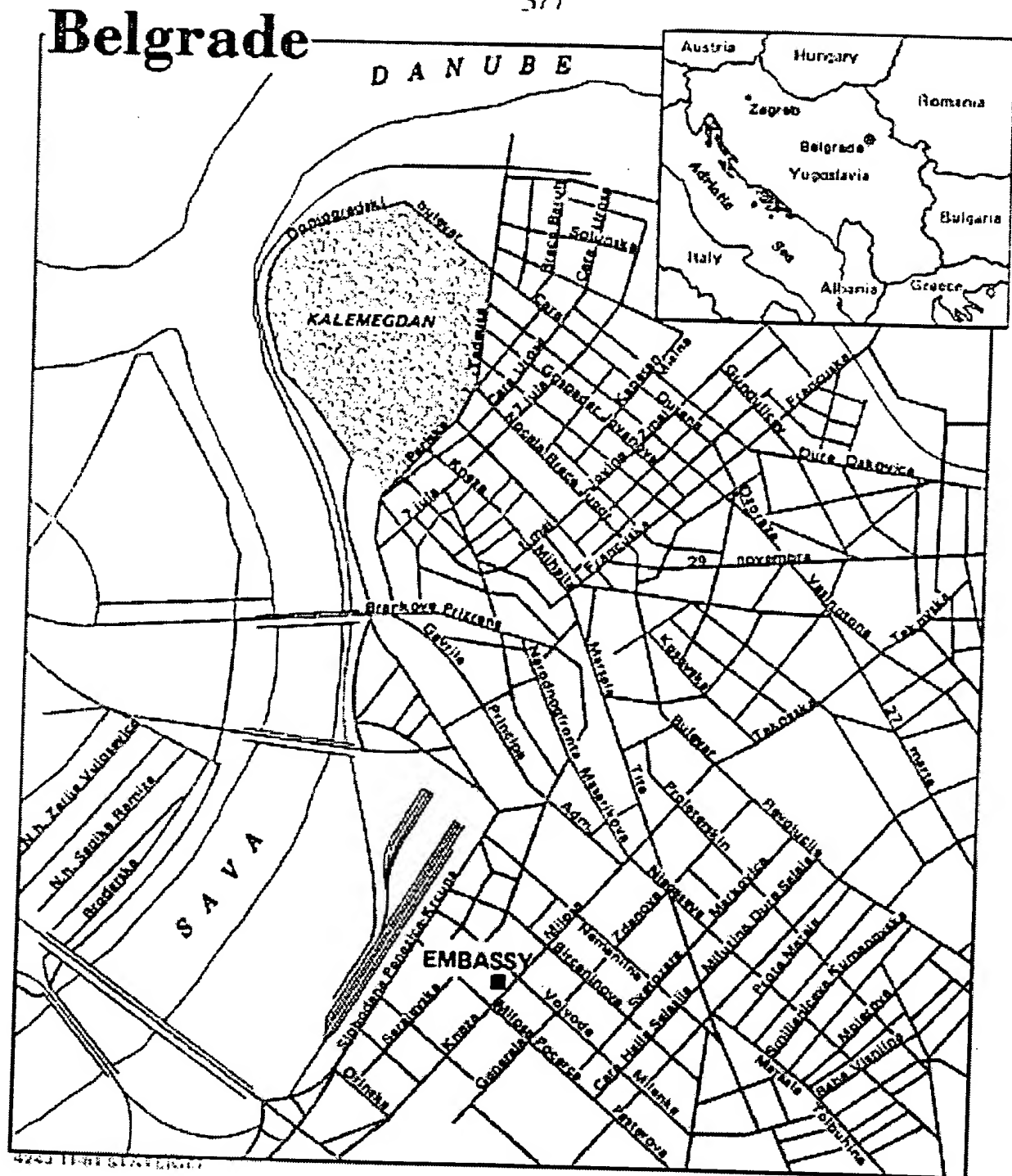


Fig. 3: Conventional Digital Map

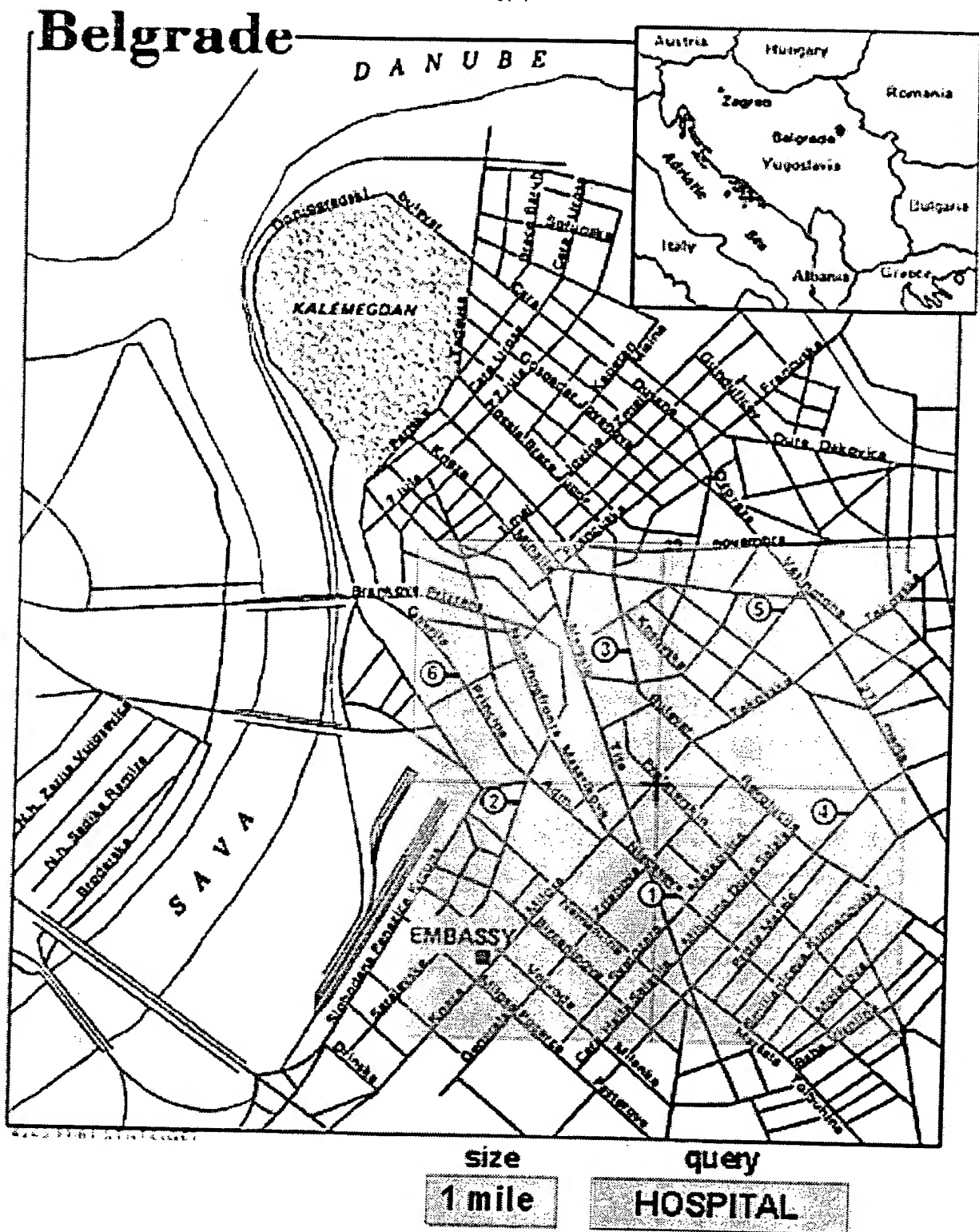


Fig. 4: A typical query



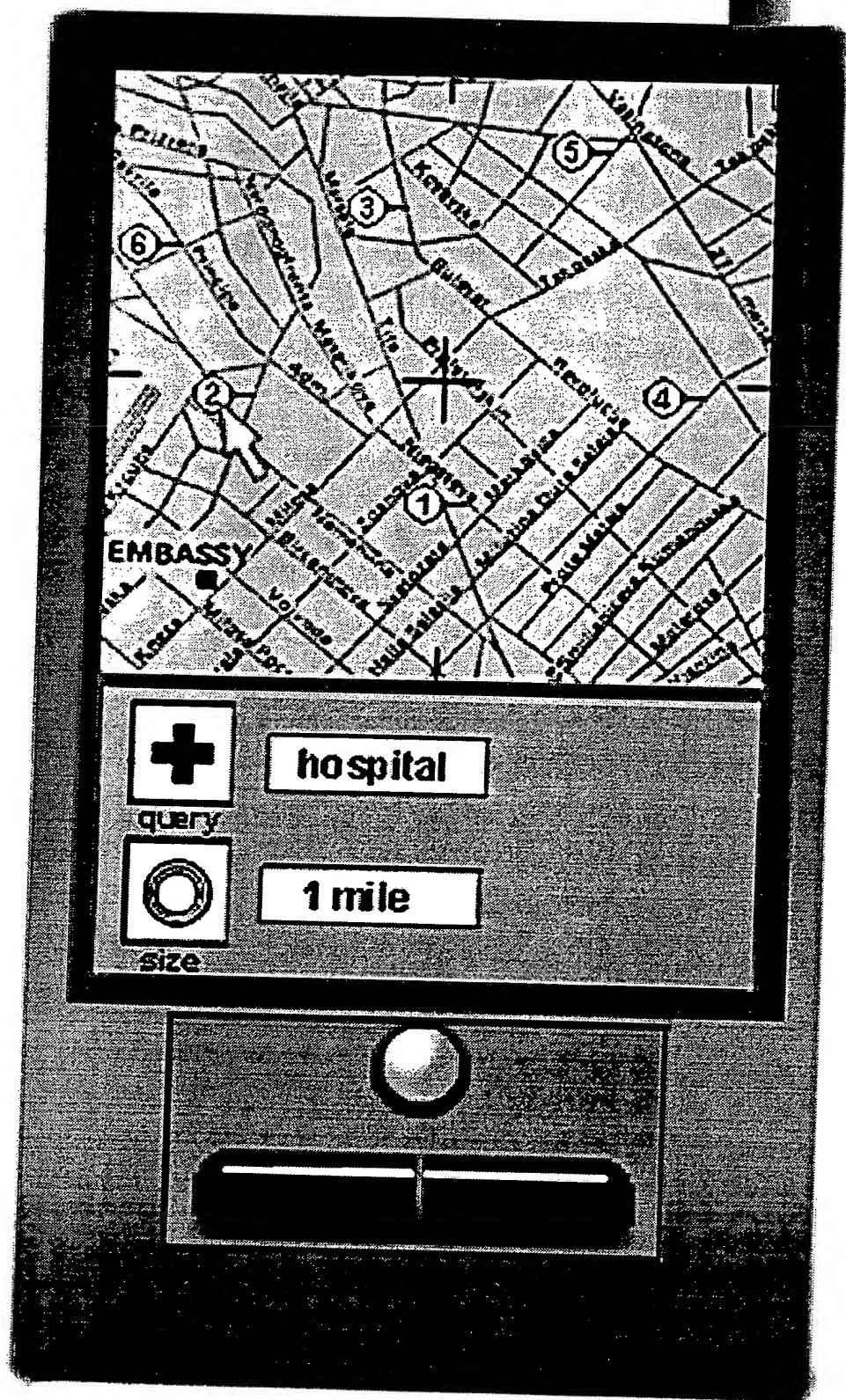
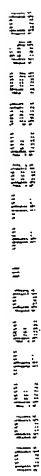


Fig. 6: Iconic map of the query





**Figure 3**